

CLAIMS

What is claimed is:

1. A method of performing power measurements on a TDMA carrier to find a discontinuous control channel in a wireless communication system, said method comprising:
  - selecting a carrier with a discontinuous control channel;
  - performing a plurality of repetitive power measurements on said carrier beginning with a first power measurement and continuing for a predetermined number of succeeding power measurements;
- 10 said first power measurement taken in a first slot position in a first frame of a TDMA multi-frame; and each said succeeding power measurement occurring in a frame subsequent to a preceding power measurement and shifting forward one slot position in modulo fashion relative to said preceding power measurement.
- 15 2. The method of claim 1 wherein said frame comprises n slots, and wherein shifting forward one slot position in modulo fashion relative to a preceding power measurement comprises shifting forward one slot modulo  $n+1$ .
- 20 3. The method of claim 1 wherein performing a plurality of power measurements on said carrier beginning with a first power measurement and continuing for a predetermined number of succeeding power measurements comprises performing said power measurements for a period of 26 frames to complete one power measurement set.

4. The method of claim 1 wherein performing a plurality of power measurements on said carrier beginning with a first power measurement and continuing for a predetermined number of succeeding power measurements comprises performing said power measurements over at least five power measurement sets.

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5. The method of claim 4 further comprising saving a maximum power measurement from said plurality of power measurements for each power measurement set.

10 6. The method of claim 5 further comprising selecting a predetermined number of said maximum power measurements with the highest values and averaging said selected maximum power measurements to obtain an average power for said carrier.

15 7. The method of claim 6 wherein selecting a predetermined number of said maximum power measurements with the highest values comprises selecting at least four of said maximum power measurements with the highest values.

20 8. The method of claim 6 wherein selecting a predetermined number of said maximum power measurements with the highest values comprises selecting at least five of said maximum power measurements with the highest values.

9. The method of claim 10 wherein said wireless communications system is an EGDE Compact system.

10. A method of scanning a plurality of carriers in a wireless communications system, said method comprising:

defining a sliding power measurement window comprising one frame plus one

5 slot in a TDMA multi-frame, said TDMA multi-frame comprising a plurality of frames and a plurality of slots in each frame;

performing a plurality of repetitive power measurements on said plurality of carriers over a plurality of successive sliding power measurement windows;

10 said repetitive power measurements on each said carrier taken at the same relative position in each said sliding power measurement window, such that each successive power measurement on each carrier shifts forward one slot position in a modulo fashion.

15 11. The method of claim 10 wherein performing a plurality of repetitive power measurements on a plurality of carriers over a plurality of successive power measurements windows comprises performing a single power measurement on each carrier in each power measurement window.

20 12. The method of claim 11 wherein performing a plurality of repetitive power measurements on a plurality of carriers over a plurality of successive power measurement windows comprises performing said repetitive power measurements over a period of at least 26 frames.

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13. The method of claim 11 wherein performing a plurality of repetitive power measurements on a plurality of carriers over a plurality of successive power measurement windows comprises performing said repetitive power measurements over a period of at least 130 frames.

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14. The method of claim 12 further comprising:  
selecting a predetermined number of power measurements with the highest values on each carrier;  
averaging said selected power measurements on each carrier to obtain an average power for each carrier; and  
selecting one or more candidate channels based on said average power measurements.

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15. The method of claim 14 wherein selecting a predetermined number of power measurements with the highest values on each carrier comprises selecting at least four power measurements with the highest values.

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16. The method of claim 14 wherein selecting a predetermined number of power measurements with the highest values on each carrier comprises selecting at least five power measurements with the highest values.

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17. The method of claim 10 wherein said wireless communications system is an EDGE Compact system.

18. A channel selection method implemented in a mobile terminal to select a carrier from a plurality of available carriers in a wireless communications system, said method comprising:
- 5        dividing said available carriers into groups of carriers, each group of carriers comprising a plurality of carriers;
- defining a power measurement window comprising one frame plus one slot of a TDMA multi-frame, said TDMA multi-frame comprising a plurality of frames and a plurality of slots in each frame;
- 10      for each group of carriers, performing a plurality of repetitive power measurements on each carrier in said group of carriers over a plurality of successive power measurement windows, said repetitive power measurements on each said carrier in said group of carriers taken at the same relative position in each said power measurement window, such that each successive power measurement on each carrier shifts forward one slot position in modulo fashion; and
- 15      selecting a channel based on said power measurements.
19. The method of claim 18 wherein performing a plurality of repetitive power measurements on each carrier in said group of carriers over a plurality of successive power measurement windows comprises performing said repetitive power measurements over a period of at least 26 frames.
20. The method of claim 19 wherein performing a plurality of repetitive power measurements on each carrier in said group of carriers over a plurality of successive
- 25      measurements on each carrier in said group of carriers over a plurality of successive

power measurement windows comprises performing said repetitive power measurements over a period of at least 130 frames.

21. The method of claim 20 wherein selecting a channel based on said power

5 measurements comprises:

selecting a predetermined number of power measurements with the highest

values on each carrier in each group of carriers;

averaging said selected power measurements on each carrier in each group of

carriers to obtain an average power for each carrier; and

10 selecting one or more candidate channels based on said average power

measurements.

22. The method of claim 21 wherein selecting a predetermined number of power

measurements with the highest values on each carrier in each group of carriers

15 comprises selecting at least four power measurements with the highest values.

23. The method of claim 21 wherein selecting a predetermined number of power

measurements with the highest values on each carrier in each group of carriers

comprises selecting at least five power measurements with the highest values.

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24. The method of claim 18 wherein said wireless communications system is an

EDGE Compact system.

25. A wireless communication mobile terminal comprising:
- a receiver to receive signals on a plurality of carriers;
  - a power measurement circuit operatively connected to said receiver to measure
- 5           the power of signals received on said plurality of carriers, wherein said power measurement circuit performs a plurality of repetitive power measurements on each of said plurality of carriers over a plurality of successive power measurement windows, said repetitive power measurements on each said carrier taken at the same relative position in each said power measurement
- 10           windows; and
- control logic to control the operation of said power measurement circuit and to select a channel based on said power measurements made by said power measurement circuit.
- 15       26. The mobile terminal of claim 25 wherein said repetitive power measurements are made over a period of at least 26 frames.
- 20       27. The mobile terminal of claim 26 wherein said repetitive power measurements are made over a period of at least 130 frames.
- 25       28. The mobile terminal of claim 27 wherein said control unit averages a selected number of power measurements with the highest values on each carrier to obtain an average power for each carrier and selects one or more candidate channels based thereon.

29. The mobile terminal of claim 28 wherein said control unit averages the four highest power measurements on each carrier.

30. The mobile terminal of claim 28 wherein said control unit averages the five highest power measurements on each carrier.

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